

Long-life cold-cathode 20 mm sign indicator for direct symbol display in electronic measuring and counting instruments.

GENERAL CHARACTERISTICS

BASE DESIGNATION	Special 13-pin	BASE PINS	13
NOMINAL HEATER	– / –	PARALLEL HEATER	– / –
HEATING	Indirect; cold cathode	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Nixie	
MAXIMUM PLATE VOLTAGE	170 V
MAXIMUM CATHODE CURRENT	20 mA
MINIMUM REGULATOR CURRENT	3 A
MAXIMUM REGULATOR CURRENT	6 A
STARTING VOLTAGE	160 V
MAINTAINING VOLTAGE	140 V
Single indicator/counting section. Nixie-specific electrical ratings and operating data are retained in TUBE_SECTION_PARAMETER.	

ZM1041 is a long-life 20 mm sign indicator, classified as Nixie for this batch. The supplied datasheet provides cold-cathode display ratings, operating conditions, and mechanical/display information.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1965 Nixie Valvo

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1965 NIXIE VALVO

Section 1 · Nixie

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ignition voltage	160 V	Typical characteristic
Burning voltage	140 V	Typical glow voltage
Extinction voltage	120 V	Typical characteristic
Symbol set	+/-	Direct glow display of signs

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Continuous cathode current	3–6 mA	Absolute range
Cathode-to-cathode voltage	—120 V	Absolute maximum
Envelope temperature	—70 degC	Absolute maximum
Recommended supply voltage	200–350 V	Published examples 200, 250, 300, 350 V
Recommended off-cathode bias	60— V	Bias operation
Maximum pulse cathode current	—20 mA	Pulse duration max 20 ms

SOURCE OPERATING CONDITIONS

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1967 Nixie La Radiotechnique

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1967 NIXIE LA RADIOTECHNIQUE

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ignition/Starting Voltage	160 V	Published ignition/start value
Extinction Voltage	120 V	Published extinction value
Minimum Cathode Current	3 mA	Published minimum

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Recommended/Minimum Supply Voltage	160 V	Published operating condition
Maximum Cathode Current	6 mA	Published maximum/average maximum
Peak Cathode Current	20 mA	Published peak value



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1969 Nixie Mullard

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1969 NIXIE MULLARD

Section 1 · Nixie

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Numeral/Character Height	20 mm	Published mechanical/display data
Maximum Peak Cathode Current	20 mA	Published peak limit

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Supply Voltage	170 V	Published operating data
Cathode Current	4.5 mA	Published average/normal value
Maintaining Voltage	140 V	Published datasheet value



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1969 Nixie Valvo

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1969 NIXIE VALVO

Section 1 · Nixie

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ignition voltage	160 V	Typical characteristic
Burning voltage	140 V	Typical glow voltage
Extinction voltage	120 V	Typical characteristic
Symbol set	+/-	Direct glow display of signs

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Continuous cathode current	3–6 mA	Absolute range
Cathode-to-cathode voltage	—120 V	Absolute maximum
Envelope temperature	—70 degC	Absolute maximum
Recommended supply voltage	200–350 V	Published examples 200, 250, 300, 350 V
Recommended off-cathode bias	60— V	Bias operation
Maximum pulse cathode current	—20 mA	Pulse duration max 20 ms



SOURCE DATA APPENDIX

196X Nixie Random Datasheets

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196X NIXIE RANDOM DATASHEETS

Section 1 · Nixie

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Character/Numeral Height	20 mm	Published datasheet value
Ignition Voltage Maximum	170 V	Published datasheet value

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Cathode/Anode Current Maximum	4.5 mA	Published datasheet value
Off-Cathode Bias Voltage Maximum	120 V	Published datasheet value

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Supply Voltage Minimum	170 V	Published datasheet value
Extinguishing Voltage Minimum	120 V	Published datasheet value
Cathode Selecting Voltage Minimum	60 V	Published datasheet value
Anode Voltage Necessary for Ignition	170 V	Published datasheet value



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SOURCE OPERATING CONDITIONS

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1971 Nixie RFT

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1971 NIXIE RFT

Section 1 · Nixie

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ignition voltage	170 V	Maximum/typical threshold shown in source table
Operating glow voltage	140 V	Approximate service voltage
Extinction voltage	120 V	Source table value
Nominal cathode current	4.5 mA	Main symbol/digit
Ignition voltage	160 V	Typical characteristic
Burning voltage	140 V	Typical glow voltage
Extinction voltage	120 V	Typical characteristic
Symbol set	+/-	Direct glow display of signs

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum supply voltage	170 V	Absolute limit table
Cathode current	3–6 mA	Main symbol/digit continuous range
Maximum peak cathode current	20 mA	Main symbol/digit
Envelope temperature minimum	-20 degC	Operating envelope temperature range
Envelope temperature maximum	70 degC	Operating envelope temperature range
Display characters	+, -	Translated from French source
Display orientation	side	Viewing orientation
Character height	max 20.0 mm	Display geometry
Maximum tube height	62 mm	Mechanical dimension
Maximum tube width/diameter	30 mm	Mechanical dimension as printed
Continuous cathode current	3–6 mA	Absolute range
Cathode-to-cathode voltage	—120 V	Absolute maximum
Envelope temperature	—70 degC	Absolute maximum
Recommended supply voltage	200–350 V	Published examples 200, 250, 300, 350 V
Recommended off-cathode bias	60— V	Bias operation
Maximum pulse cathode current	—20 mA	Pulse duration max 20 ms



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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1973 Nixie Siemens

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1973 NIXIE SIEMENS

Section 1 · Nixie

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ignition voltage	170 V	Maximum/typical threshold shown in source table
Operating glow voltage	140 V	Approximate service voltage
Extinction voltage	120 V	Source table value

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Nominal cathode current	4.5 mA	Main symbol/digit

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum supply voltage	170 V	Absolute limit table
Cathode current	3–6 mA	Main symbol/digit continuous range
Maximum peak cathode current	20 mA	Main symbol/digit
Envelope temperature minimum	-20 degC	Operating envelope temperature range
Envelope temperature maximum	70 degC	Operating envelope temperature range
Display characters	+, -	Translated from French source
Display orientation	side	Viewing orientation
Character height	max 20.0 mm	Display geometry
Maximum tube height	62 mm	Mechanical dimension
Maximum tube width/diameter	30 mm	Mechanical dimension as printed



SOURCE DATA APPENDIX

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1999 Philips E-Z

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1999 PHILIPS E-Z

Section 1 · Nixie

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Supply voltage	170	Supply voltage 170 VvV
Ignition voltage	170 V	Ignition voltage Vign max. 170 V
Bias voltage between anode and "off"	120 V	Bias voltage between anode and "off" cathode Vbias max. 120 V

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Cathode current	4.5 mA	Cathode current 4.5 mA
Maintaining voltage	4	Maintaining voltage Vm see sheets 3 and 4

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Extinguishing voltage	120 v	Extinguishing voltage Vext min. 120 v
"Off" cathode probe current characteristic	4	"Off" cathode probe current characteristic see sheet 4
Anode voltage necessary for ignition	170 v	Anode voltage necessary for ignition Va min. 170 v
Impulse duration	80	Impulse duration Timp min. 80 wus
Cathode selecting voltage	60	Cathode selecting voltage Vik min, 60 VvV
Bulb temperature	-50	Bulb temperature bulb in. -50 °C
1y Bulb temperatures below 10°C result in a reduced life expectancy and changes	10 °C	1y Bulb temperatures below 10°C result in a reduced life expectancy and changes

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